REMARKS

This Amendment is responsive to the first office action on the merits in this matter, mailed October 6, 1999. In view of the amendments and the remarks made herein, the applicant respectfully requests reconsideration and further examination of this application.

In response to the various objections and rejections set forth in the Official Action, specific responses and remarks are set forth below. Accordingly, the applicant respectfully requests that the examiner reconsider the application, as amended.

At the outset, it must be noted that under the patent statutes, *"whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor"* subject to the other requirements of the patent statutes. 35 U.S.C. Section 101. This section has been clearly interpreted as meant to include *"anything under the sun that is made by man."* Diamond v. Chakrabarty, 447, U.S. 303, 309, 65 L.Ed.2d 144, 100 S.Ct 2204 (1980) (quoting S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1982); H.R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952).

Here, the inventor is faced with a rather common but difficult problem, namely, how can the novel and unobvious

product of his process be adequately described ? Given the infinite variety and complexity of available feedwaters from which to produce a treated water composition having trace amounts of solutes remaining therein, to describe such a product by an analytical analysis of the final composition, for a variety of starting feedwaters, would be a Herculean and virtually impossible task. On the other hand, the inventor and the undersigned patent practitioner face the claims construction problem created by the Federal Circuit's decision in Exxon Chemical Patents, Inc., et al v. Lubrizol Corporation, 77 F.3d 450, 1996 U.S. App. Lexis 3150, 37 U.S.P.Q.2d (BNA) 1767, (CAFC 1996), where merely describing in a claim the ingredients in a composition, which ingredients later react in that composition, was deemed insufficient to validly protect the product as claimed.

As the heart of the novel and unobvious product water composition results from treatment by a novel and unobvious process, as suggested in the above referenced Exxon Chemical Patents v. Lubrizol matter, the inventor has set forth his invention in terms of product-by-process claims.

Unfortunately, in this case, the examiner has taken the position that the claims as previously presented are anticipated by four separate references, each standing alone. However, none of the asserted anticipatory

references teach reducing the tendency of the feedwater to scale in membrane separation equipment by effecting two or more of (i) hardness removal, (ii) the removal of substantially all non-hydroxide alkalinity, or (iii) removing dissolved gas, before the concentration of a feedwater to a selected concentration, in combination with the other claim limitations set forth in newly presented claims 11 or 12. Moreover, such just mentioned two or more limitations, as set forth in newly presented claims 11 and 12 (and in previously pending claim 1) are not inherent in any of the cited references, nor were they known in the art prior to the issue of the parent case hereto (or, by way of publication of the related International Application under the Patent Cooperation Treaty, or papers presented to industry by the inventor herein).

Since anticipation is validly established only if each and every element of the claim is present in a single prior art reference, it is respectfully submitted that the examiner's position that the invention is anticipated is incorrect. In any event, the further combination of limitations which are set forth in the newly presented claims should eliminate all doubt as to whether there is any difference between the claimed invention and the references cited, as viewed by a person of ordinary skill in the water

treatment arts. Consequently, it is respectfully requested that all rejections based on anticipation be removed. However, further and more specific comments follow, in response to each of the rejections set forth in the Office Action.

1. REJECTION (OBVIOUSNESS-TYPE/ DOUBLE PATENTING

The Examiner has rejected Claim 1 under the judicially created doctrine of obviousness-type double-patenting as being unpatentable over claims 1, 9, 81 and 115 of Mukhopadhyay (U.S. Patent No. 5,925,255). However, since claim 1 has been canceled, and the new independent claims 11 and 12 clearly avoid any double patenting issues, this basis of rejection is now believed moot, and it is respectfully requested that this basis of rejection of the invention, as presently claimed, be withdrawn.

2. REJECTION UNDER 35 U.S.C. SECTION 102 (e) (ANTICIPATED) Based on Collentro, et al (U.S. Patent No. 5,766,479 and 5,670,053)

The examiner has rejected previously pending claims 1 and 8 as being clearly anticipated (exactly disclosed) by Collentro, et al, U.S. Patents 5,766,479 and 5,670,053. It

is respectfully believed that this is incorrect, particularly as regards newly presented independent claims 11 and 12. As was pointed out in great detail in the parent case to this application, neither of Collentro's patents cited by the examiner removes substantially all alkalinity from the feedwater (as now set forth in newly presented claim 11, or substantially all of the non-hydroxide alkalinity from the feedwater (as now set forth in newly presented claim 12), before treatment of the feedwater in membrane separation equipment.

Again, it must be pointed out that a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. In particular, the identical invention must be shown in as complete detail as is contained in the claim See MPEP Section 2131. As the presently claimed invention is not disclosed by either of the Collentro references, it is respectfully requested that this basis of rejection be withdrawn.

The examiner's comment regarding "claim 3", with respect to the removal of "hardness and alkalinity by a single unit" is not understood, since prior pending claim 3 (formerly mis-numbered claim 124, as filed) was directed to

identifying the claimed composition of matter with respect to the total organic carbon content thereof.

Likewise, the examiner's comment regarding "claim 13", is not understood, as until the present amendment, there was not claim 13 pending in the case. Since the remark was directed to treatment of "silica" by Collentro, it is presumed that the rejection should have been directed to prior pending claim 8 (mis-numbered claim 95, as filed). In this regard, as applied to newly presented claim 19, it is noted that Collentro provided no data with respect to silica residual in his permeate, even though he alleges, as col. 8, line 50, that his permeate is "substantially free of these ions", including silica.

In any event, it is noted that presently pending claim 19 is dependent on novel and unobvious parent claims, and is clearly not anticipated, for the reasons set forth above. Therefore it is respectfully requested that any rejections under 35 U.S.C. Section 102, based on either of the cited Collentro patents, be removed.

3. REJECTION BASED ON 35 U.S.C. SECTION 102 (b) (ANTICIPATED)

Based on Tao, et al (U.S. Patent No. 5,250,185)

The examiner has rejected prior pending claims 5-7 (directed to the degree of boron removal) as being clearly anticipated (exactly disclosed) by Tao, et al, U.S. Patent 5,250,185. As applied to the newly presented claims 16, 17, and 18, and claims dependent thereon, the applicant respectfully disagrees. Although Tao discloses the efficient removal of boron via reverse osmosis during high pH operation, he does not do so in combination with high rejection of Total Organic Carbon.

In any event, all claims directed to removal of boron are dependent upon a novel and unobvious parent claims, and thus are clearly not anticipated. Therefore it is respectfully requested that any rejection under 35 U.S.C. Section 102(b) based on the cited Tao reference be removed.

4. REJECTION BASED ON 35 U.S.C. SECTION 102 (a) (ANTICIPATED)

Based on Bhave, et al (U.S. Patent No. 5,634,727)

The examiner has rejected prior pending claims 2-10 as being clearly anticipated (exactly disclosed) by Bhave, et al, U.S. Patent 5,634,727. As applied to the newly presented claims the applicant respectfully disagrees. Although Bhave discloses the production of ultra pure water in which the content of virus, bacteria, and TOC, is minimized by on-line ozonation, he does not disclose a water composition in which scale forming components have been removed prior to treatment via reverse osmosis processing under high pH conditions.

In any event, the newly presented claims are dependent upon novel and unobvious parent claims, and thus are clearly not anticipated. Therefore it is respectfully requested that any rejection under 35 U.S.C. Section 102(b) based on the cited Bhave reference be withdrawn.

5. REJECTION BASED ON 35 U.S.C. SECTION 102 (b) (ANTICIPATED)

Based on Abe, et al (U.S. Patent No. 5,573,662)

Finally, the examiner has rejected prior pending claims 2-4 as being clearly anticipated (exactly disclosed) by Abe, et al, U.S. Patent 5,573,662. As applied to the newly presented claims including limitation with respect to TOC removal during the treatment process, the applicant respectfully disagrees. Although Abe discloses the efficient removal of TOC in an ultrapure water treatment process, Abe does not exactly disclose the now claimed composition. Consequently, Abe does not anticipate the corresponding claims setting forth a composition of water from which TOC has been efficiently removed.

In any event, such claims are dependent upon newly presented novel and unobvious parent claims, and thus are clearly not anticipated. Therefore it is respectfully requested that any rejection under 35 U.S.C. Section 102(b) based on the cited Abe reference be removed.

SUMMARY

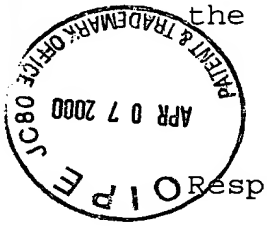
The applicant has invented a novel, economically important treated water composition, which in individual cases can be uniquely identified by reference to the feedwater from which the water composition is produced.

It is believed that the newly presented claims define over the prior art of record. It is therefore respectfully argued that none of the cited art references anticipates the applicant's invention as claimed. Therefore, reconsideration and withdrawal of the rejections based on 35 U.S.C. Section 102 is respectfully requested.

For the reasons discussed in detail above, it is believed that this application is now limited to claims which are clearly patentable over references of record.

Favorable consideration of this application is therefore believed to be in order and such action is earnestly solicited.

Done at Kent, County of King, State of Washington, on the 6th day of April, 2000.



Respectfully submitted,

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